

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018-AB91

Endangered and Threatened Wildlife and Plants: Proposed Determination of Critical Habitat for the Colorado River Endangered Fishes: Razorback Sucker, Colorado Squawfish, Humpback Chub, and Bonytail Chub

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: The Fish and Wildlife Service (Service) proposes to designate critical habitat for four species of endemic Colorado River Basin fishes: Razorback sucker (*Xyrauchen texanus*), Colorado squawfish (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), and bonytail chub (*Gila elegans*). These species are listed as endangered under the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Historically, these four species occurred throughout the Colorado River system from Wyoming to Mexico. The Service is under court order to publish a proposed rule for critical habitat for the razorback sucker by January 25, 1993, using presently available information.

The Service proposes to designate a total of 3,370 kilometers (2,094 miles) of critical habitat for the four Colorado River endangered fishes. There is considerable overlap in areas designated for the four species. The designation for all four species includes portions of Colorado, Utah, New Mexico, Arizona, Nevada, and California. The Service proposes 2,935 kilometers (1,824 miles) of critical habitat for the razorback sucker (52 percent of its historical range); 1,843 kilometers (1,148 miles) for the Colorado squawfish (29 percent of the historical range); 610 kilometers (379 miles) for the humpback chub (28 percent of the historical range); and 544 kilometers (344 miles) for the bonytail chub (15 percent of the historical range).

This proposed critical habitat designation, when made final, would result in additional consultation and conference requirements under section 7 of the Act with regard to Federal agency actions which are likely to destroy or adversely modify critical habitat. The Service is soliciting data and comments from the public on all aspects of this proposal, including information on the impacts and benefits of the designation.

DATES: Comments on this proposed rule will be accepted until March 30, 1993.

ADDRESSES: Information, comments, or questions concerning this proposed rule may be submitted to the Utah State Supervisor, Ecological Services, U.S. Fish and Wildlife Service, 2060 Administration Building, 1745 West 1700 South, Salt Lake City, Utah 84104. The complete file for this rule is available for public inspection, by appointment, during normal business hours at the above address.

FOR FURTHER INFORMATION CONTACT: Robert D. Williams, Utah State Supervisor, at the above address, telephone 801/975-3630.

SUPPLEMENTARY INFORMATION: The Fish and Wildlife Service (Service) has had limited time to prepare a proposed rule. Because of this, an economic analysis, a biological support document, and a complete evaluation of the effects of the critical habitat designation are not now available. The economic analysis and a biological support document are currently in preparation. Once completed, a notice will be published in the *Federal Register*, announcing their availability and the dates and locations of public hearings. A comment period will follow publication of the documents; this will allow public review of the economic analysis and the biological support document. The Service will hold public hearings on this proposed rule in Phoenix, Arizona; Denver, Colorado; and a site to be determined in southern California. The dates and specific locations for these hearings will be published in the *Federal Register* at least 15 days prior to the first hearing. Any determinations on exclusions of areas proposed as critical habitat will be published in the final rule.

The biological support document will contain detailed discussion of the process used to select critical habitat reaches. This will include a summary of known life history and ecological requirements for these species, presentation of the information used to develop the primary constituent elements, and a discussion of the biological basis for selection of proposed river reaches. Additionally, a discussion of activities which affect or may be affected by critical habitat designation will be included.

The economic analysis will contain an evaluation of costs and benefits resulting from this proposed designation. The information that will be contained in the economic analysis are detailed under the "Considerations of Economic and Other Factors" section within this document. The economic

analysis will be used by the Service during the exclusion process. The exclusion process will determine whether the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat unless it is determined that the failure to designate such area as critical habitat will result in the extinction of the species concerned.

Background

The Colorado River Basin (Basin) encompasses portions of seven Western States. The Upper Basin consists of portions of the States of Colorado, New Mexico, Utah, and Wyoming. The Lower Basin consists of portions of the States of Arizona, California, and Nevada. The Basin drains approximately 627,000 square kilometers (242,000 square miles) within the United States. An additional 5,000 square kilometers (2,000 square miles) of the Basin lies within Mexico.

Historically, the native fish fauna of the mainstream Colorado River was dominated by native minnows (cyprinids) and suckers (catostomids; Minckley et al. 1986). However, four of these, the razorback sucker (*Xyrauchen texanus*), Colorado squawfish (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), and bonytail chub (*Gila elegans*), are now listed as endangered species. These fishes are threatened with extinction due to the combined effects of habitat loss (including regulation of natural flow, temperature, and sediment regimes); proliferation of introduced fishes; and other man-induced disturbances (Miller 1961; Minckley 1973; U.S. Fish and Wildlife Service (USFWS) 1987; Carlson and Muta 1989).

Native Colorado squawfish stocks survive only in the Upper Basin, where their numbers are relatively high only in the Green River basin of Utah and Colorado (Tyus 1991). Razorback sucker and bonytail chub stocks consist predominately of old adult fish, and they remain only because of the longevity inherent in these species (USFWS 1990a; Minckley et al. 1991). Humpback chub populations in the Little Colorado River and at Black Rocks in the Colorado River appear relatively stable in number of fish, but declines have been apparent in other locations (USFWS 1990b).

Conservation of these four species will require the identification and management of water resources and habitat areas that are considered important to any fish species, such as spawning areas and nursery grounds. However, because the four endangered fishes are present in such low numbers,

basic life history information and habitat use has been difficult to obtain. Some areas used by Colorado squawfish and razorback sucker for spawning have been detected by radiotracking, tagging, and collection of eggs or larvae (Tyus and Karp 1990; Tyus 1990), but these areas support the largest riverine concentrations of these species. Such information is less available in places where these species are more rare, and the low numbers or lack of young for some species have led to hypotheses about a lack of reproduction and/or recruitment as a possible cause of their endangerment (USFWS 1990a, 1990b, 1991). In this case, not only would a lack of successful recruitment lead to small numbers of fish, but over time, remnant stocks may lose genetic diversity. Ultimately, extinction could result because the loss of genetic diversity may make populations more susceptible to environmental change.

The historical ranges of the four endangered species have been fragmented by construction of dams and water diversions throughout the Basin (Carlson and Muth 1989). The Service believes that it is important to the survival and recovery of these species to reestablish populations in areas within their former range. Providing geographically distinct areas that contain varying thermal, chemical, geological, and physical parameters will encourage maintenance of the current genetic pool. These parameters influence important life history characteristics such as time of spawning, recruitment, growth, mortality rates, and longevity.

Habitats and Status of Endangered Fishes

General

The four endangered Colorado River fishes evolved in the Colorado River and were adapted to the natural environment that existed prior to the beginning of large-scale water development. Thus, they were adapted to a system of fluctuating seasonal and annual flows influenced by wet, average, and dry climatic periods. Recent population declines and disappearances of endemic fish species in much of their former range have been associated with relatively rapid and widespread anthropogenic changes. These changes have altered the physical and biological characteristics of many mainstream rivers in the Basin and occurred so rapidly that the fishes have not had time to adapt to them (Carlson and Muth 1989). Dams and diversions have fragmented former fish habitat by restricting fish movement. As a result,

genetic interchange (emigration and immigration of individuals) between some fish populations is nonexistent. Large floods were once normal in the Basin and provided food and nutrient exchange between river channels and shallow-water floodplain habitats. These floods are now controlled by numerous dams. As a result of these dams, major changes also have occurred in water quality, quantity, temperature, sediment and nutrient transport, and other characteristics of the aquatic environment (Carlson and Muth 1989). The altered habitats that have resulted are now more suitable for introduced, nonnative fishes, some of which have flourished (Minckley et al. 1982; Tyus et al. 1982; Carlson and Muth 1989). These changes have greatly altered the river environment and little or no unaltered habitat remains in the Basin for the four Colorado River endangered fish species addressed in this proposed rule. Additional detail on the status and life histories of these species will be provided in the biological support document.

Razorback Sucker

This species was once one of the most abundant and widely distributed fish in mainstream rivers of the Colorado River (Jordan and Evermann 1896; Minckley 1973). A relatively large stock of razorback suckers remain in Lake Mohave (Minckley et al. 1991). However, the formerly large Lower Basin populations have been extirpated from all natural riverine environments, and recruitment is virtually nonexistent in the remnant stocks (Minckley et al. 1991). In the Upper Basin, the fish persists in the lower Yampa and Green Rivers, mainstream Colorado River, and lower San Juan River (Tyus et al. 1982; Minckley et al. 1991; Platania et al. 1991), but there is little indication of recruitment in these remnant stocks. The largest extant riverine population occurs in the upper Green River Basin, but it consists of only about 1,000 fish (Lanigan and Tyus 1989). In the absence of conservation efforts, it is presumed that wild populations will be lost as old fish die and are not replaced.

Reproduction and habitat use of razorback suckers has been studied in lower basin reservoirs, especially in Lake Mohave. Fish reproduction has been visually observed in reservoir shorelines for many years, and spawning in the reservoir usually lasts from January or February to April or May. The fish spawn over mixed substrates that range from silt to cobble, and at water temperatures ranging from 10.5 to 21 degrees Celsius (reviewed by Minckley et al. 1991).

Habitat use and spawning behavior of adult razorback suckers in riverine habitats have been studied by radiotelemetry in the Green River Basin (Tyus and Karp 1990). The fish there spawned in the spring with rising water levels and increasing temperatures. The fish moved into flooded areas in early spring, and they made spawning migrations to specific locations as they became reproductively active. Spawning occurred over rocky runs and gravel bars.

In nonreproductive periods, adult razorback suckers occupy a variety of habitat types. These include impounded and riverine areas and habitats represented by: Eddies, backwaters, gravel pits, flooded bottoms and the flooded mouths of tributary streams, slow runs, sandy riffles, and others (reviewed by Minckley et al. 1991). Summer habitat use included deeper eddies, backwaters, holes, and midchannel sandbars (Tyus and Karp 1990; Minckley et al. 1991).

Habitats used by young razorback suckers have not been fully evaluated because of the low number of young fish present in the river system. However, most studies agree that the larvae prefer shallow, littoral zones for a few weeks after hatching, then they disperse to deeper water areas (reviewed by Minckley et al. 1991). Laboratory studies indicated that, in a riverine environment, the larvae enter stream drift and are transported downstream (Paulin et al. 1989).

During winter, adult razorback suckers utilize main channel habitats that are similar to those used during other times of the year, including eddies, slow runs, riffles, and slackwaters (Valdez and Masslich 1989; Tyus and Karp 1990).

Although habitat use of razorback suckers has been studied for years, the habitat preferences and factors limiting their abundance in native riverine habitats are not well known because of the scarcity of extant populations (Minckley 1983; Lanigan and Tyus 1989) and the absence of younger life history stages (Minckley et al. 1991). However, based on available data taken from the Green River, Tyus and Karp (1989) considered low winter flows, high spring flows, seasonal changes in river temperatures, and inundated shorelines and bottomlands as factors that potentially limit the survival, successful reproduction, and recruitment of this species.

Colorado Squawfish

This species is the only living representative of the genus *Ptychocheilus* in the Basin, where it is

endemic. Its origins there predate recorded history, but by the mid-Pliocene epoch (about 6 million years ago) fossils indicate that early *Ptychocheilus* had riverine adaptations that were similar to modern forms. During the Pleistocene epoch (about 1 million years ago), an earlier wet climate was interrupted by periods of desert conditions (M. Smith 1981). It has been hypothesized that the migrations reported for Colorado squawfish are a perfect life history strategy for the survival of a large predaceous fish in the historic Colorado River environment (G. Smith 1981; Tyus 1986, 1990). During the spawning season, adult Colorado squawfish have been known to migrate up to 320 kilometers (200 miles) upstream or downstream to reach spawning areas (Tyus 1990).

During winter, adult Colorado squawfish in the Yampa River use backwaters, runs, and eddies, but are most common in shallow, ice-covered shoreline areas (Wick and Hawkins 1989). In spring and early summer, adult squawfish utilized shorelines and lowlands that were inundated during typical spring flooding, and this natural lowland inundation was viewed as important for their general health and reproductive conditioning (Tyus 1990). Use of these habitats may mitigate some of the effects of winter stress and aid in offsetting a large energy expenditure required for migration and spawning. Migration is an important component in the reproductive cycle of Colorado squawfish, and Tyus (1990) reported that migration cues, such as high spring flows, increasing river temperatures, and possible chemical inputs from flooded lands and springs, were important to successful reproduction.

Colorado squawfish spawn in white water canyons in the Yampa and Green Rivers. This reproduction was associated with declining flows in June, July, or August, and average water temperatures ranging from 22–25 degrees Celsius depending on annual hydrology. After spawning, adult Colorado squawfish utilized a variety of riverine habitats, including eddies, backwaters, shorelines, and others (Tyus 1990). Specific spawning sites of Colorado squawfish have not been identified outside of the Green River Basin. In the mainstream Colorado River, McCada and Keading (1991) suggested that Colorado squawfish spawning may have been adversely impacted by construction of mainstream dams and a 48 percent reduction in peak discharge.

In the Green River Basin, larval Colorado squawfish emerge from

spawning substrates and enter the stream drift as young fry (Haynes et al. 1989). The fish are then actively or passively transported downstream for about 6 days, and they may travel average distances of up to 160 kilometers (100 miles) to reach nursery areas (Tyus and Haines 1991). These areas are productive habitats that consist of ephemeral alongshore embayments that develop as spring flows decline. Such habitat is associated with lower gradient reaches.

Humpback Chub

Humpback chub remains have been dated to about 4000 B.C., but the fish was not described as a species until recent times (Miller 1946). This recent discovery has been attributed to its restricted distribution in remote, white water canyons (USFWS 1990b), and its earlier abundance and distribution is not well known. The largest populations of this species occur in the Little Colorado and Colorado Rivers in the Grand Canyon, and in the Black Rocks area of the Colorado River. Other populations have been reported in Westwater and Debeque Canyons of the Colorado River, Desolation and Gray Canyons of the Green River, and Yampa and Whirlpool Canyons in Dinosaur National Monument (USFWS 1990b).

Populations of humpback chub are found in river canyons, where they utilize a variety of habitats, including pools, riffles, and eddies. Most of the existing information on habitat preferences has been obtained from adult fish in the Little Colorado River, the Grand Canyon, and the Black Rocks of the Colorado River (Holden and Stalnaker 1975; Kaeding and Zimmerman 1983; Kaeding et al. 1990). In these locations, the fish are found associated with boulder-strewn canyons, travertine dams, pools, and eddies. Some habitat-use data are also available from the Yampa River Canyon where the fish occupy similar habitats, but also use rocky runs, riffles, rapids, and shoreline eddies (Karp and Tyus 1990). This diversity in habitat use suggests that the adult fish is adapted to a variety of habitats, and studies of tagged fish indicated that they move between habitats, presumably in response to seasonal habitat changes and life history needs (Kaeding and Zimmerman 1983; Karp and Tyus 1990). Spring peak flows, availability of shoreline eddy and deep canyon habitats, and competition and predation by nonnative fishes were reported as potential limiting factors for humpback chub in the Yampa River (Tyus and Karp 1989).

Humpback chub in reproductive condition are usually captured in May, June, and July, depending on location. Little is known about their specific spawning requirements, other than the fish spawn soon after the highest spring flows when water temperatures approach 20 degrees Celsius (Karp and Tyus 1990; USFWS 1990b). The importance of spring flows and proper temperatures for humpback chub is stressed by Kaeding and Zimmerman (1983), who implicated flow reductions and low water temperatures in the Grand Canyon as factors curtailing successful spawn of the fish and increasing its competition with other species.

Bonytail Chub

The bonytail chub is the rarest native fish in the Colorado River. Formerly reported as widespread and abundant in mainstream rivers (Jordan and Evermann 1896), its populations have been greatly reduced. The fish is presently represented in the wild by a low number of old adult fish (i.e., ages of 40 years or more) in Lake Mohave and perhaps other lower basin reservoirs (USFWS 1990a). The fish were once common in Lake Mohave and Wagner (1955) observed the fish in eddy habitats. A few individuals were reported in other locations, but concentrations of the fish have not been recently reported (Kaeding et al. 1986).

The bonytail chub always has been considered a species that is adapted to mainstream rivers, where it has been observed in pools and eddies (Minckley 1973; Vanicek 1967). In reservoirs, the fish occupies an active limnetic niche (Minckley 1973). Spawning of the fish never has been observed in nature, but Vanicek and Kramer (1969) reported that spawning occurred in June and July at water temperatures of about 18 degrees Celsius. Although wild bonytails are old fish, they are still capable of successful reproduction, and bonytail chubs placed in ponds have produced large numbers of young (B. Jensen, Fish and Wildlife Service, pers. comm.; USFWS 1990a). Although habitats that are required for conservation of the bonytail chub are not well known, the limited data suggests that flooded, ponded, or even inundated riverine habitats may be suitable for adults, especially in the absence of competing nonnative fishes (USFWS 1990a).

Previous Federal Actions

The Colorado squawfish and humpback chub were listed as endangered species on March 11, 1967 (32 FR 4001). The bonytail chub was

listed as endangered on April 23, 1980 (45 FR 27713). Critical habitat for these species was not designated at the time of their listing. On May 16, 1975, the Service published a notice of its intent to determine critical habitat for the Colorado squawfish and the humpback chub, as well as numerous other species that are not found in the Colorado River (40 FR 21499). On September 14, 1978, the Service proposed critical habitat for the Colorado squawfish (43 FR 41060). The proposal was for 1,002 kilometers (623 miles) of the Colorado, Green, Gunnison, and Yampa Rivers. This proposal was later withdrawn (44 FR 12382; March 6, 1979) to comply with the 1978 amendments to the Act (16 U.S.C. 1531 *et seq.*).

The razorback sucker was first proposed for listing as a threatened species on April 24, 1978 (43 FR 17375). The proposal was withdrawn on May 27, 1980 (45 FR 35410), in accordance with provisions of the 1978 amendments to the Act. These provisions required the Service to include consideration of designating critical habitat in the listing of species, to complete the listing process within 2 years from the date of the proposed rule, or withdraw the proposal from further consideration. The Service did not complete the listing process within the 2-year deadline.

On March 15, 1989, the Service received a March 14 petition to list the razorback sucker as endangered from the Sierra Club, National Audubon Society, The Wilderness Society, Colorado Environmental Coalition, Southern Utah Wilderness Alliance, and Northwest Rivers Alliance. The Service made a positive finding in June 1989, and subsequently published a notice in the *Federal Register* on August 15, 1989 (54 FR 33586). This notice also stated that the Service was completing a status review and was seeking additional information until December 15, 1989. A proposed rule to list the razorback sucker as endangered was published in the *Federal Register* on May 22, 1990 (55 FR 21154).

The final rule designating the razorback sucker as an endangered species was published on October 23, 1991 (56 FR 54957). Critical habitat was not designated. In the final rule, the Service concluded that critical habitat was not determinable at the time of listing and questioned whether it was prudent to designate critical habitat.

On October 30, 1991, the Service received a 60-day notice of intent to sue from the Sierra Club Legal Defense Fund. The subject of the notice was the Service's failure to designate critical habitat concurrent with listing of the

razorback sucker pursuant to section 4(b)(6)(c). This was followed by a second notice of intent to sue dated January 30, 1992. On December 6, 1991, the Service concluded that designation of critical habitat was prudent and determinable, and therefore critical habitat for the razorback sucker should be designated. Because the intent of the Act is " * * * to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved * * *", the Service also decided to propose critical habitat for the Colorado squawfish, humpback chub, and bonytail chub. The four endangered Colorado River fish species coexist in the Basin and much of their habitat overlaps.

On May 7, 1992, the Sierra Club Legal Defense Fund filed a lawsuit in the U.S. District Court (Court), Colorado, on behalf of the Colorado Wildlife Federation, Southern Utah Wilderness Alliance, Four Corners Action Coalition, Colorado Environmental Coalition, Taxpayers for the Animas River, and Sierra Club. On August 18, 1992, a motion for summary judgment was filed which requested the Court to order a final rule designating critical habitat within 90 days. In the lengthy declarations filed with the response in opposition to the motion, the Service explained that the complex analyses, which were legally required for designating critical habitat, could not be completed until September 1993. This was due to the difficulty in determining the biological needs of the fish, conducting an economic analysis for portions of seven Western States (the large geographic area involved), and compiling biological and hydrological data. On October 27, 1992, the Court ruled that the Service had violated the Act in failing to designate critical habitat when the razorback sucker was listed. The Court ordered the Service to publish a proposed rule within 90 days designating critical habitat for the razorback using presently available information and to publish a final rule at the earliest time permitted by the Act and its regulations.

The biological information needed to define the physical and biological needs of these species and to propose areas for designation as critical habitat has been assimilated by the Service. Additionally, information about the activities which may affect critical habitat or be affected by the designation has been collected. This information is presently being compiled and articulated for inclusion in the biological support document. Much of the data required to assemble the

economic model has been obtained. However, the data which are used to compute economic costs and benefits remain to be assembled.

The Service will complete the biological support document and economic analysis before publishing the final rule. The Service has decided that because this information is not presently available for review and public comment, these documents will be made available to the public for review before the Service finalizes the designation and issues a final rule. This will allow for meaningful public comment on the rule.

Recovery plans have been written for three of the four species. The Colorado Squawfish Recovery Plan was approved on March 16, 1978, and revised on August 6, 1991 (U.S. Fish and Wildlife Service 1991). The Humpback Chub Recovery Plan was approved on August 22, 1979, with a first revision on May 15, 1984, and a second revision September 19, 1990 (U.S. Fish and Wildlife Service 1990a). The Bonytail Chub Recovery Plan was approved on May 16, 1984, with a revised plan approved September 4, 1990 (U.S. Fish and Wildlife Service 1990b). Recovery goals contained in these recovery plans have been used in identifying and evaluating critical habitat for these three species. A recovery plan for the razorback sucker is currently in preparation by the Colorado River Fishes Recovery Team (Recovery Team) and Service staff, but it was not available for use in preparing this rule.

Considerations and Impacts of Critical Habitat

A list and discussion of activities which affect or may be affected by this proposed critical habitat designation has not been completed. Once completed, this information will be presented in the economic analysis and the biological support document and will be incorporated into the final rule.

"Critical habitat," as defined in section 3(5)(A) of the Act, means: (i) The specific areas within the geographical area occupied by the species at the time it is listed, on which are found those physical and biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by a species at the time it is listed upon a determination by the Secretary that such areas are essential for the conservation of the species.

The term "conservation," as defined in section 3(3) of the Act, means: The use of all methods and procedures

which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary.

Therefore, in the case of critical habitat, conservation represents the areas required to recover a species to the point of delisting (i.e., the species is recovered and is removed from the list of endangered and threatened species). In this context, critical habitat preserves options for a species' eventual recovery. Section 3(5)(C) further states that the entire geographical area which can be occupied by the species shall not be included in critical habitat except in special circumstances.

The designation of critical habitat will not, by itself, lead to recovery, but is one of several measures available to contribute to conservation of a species. Critical habitat helps focus conservation activities by identifying areas that contain essential habitat features (primary constituent elements) regardless of whether or not they are currently occupied by the listed species. Such designations alert Federal Agencies, States, the public, and other entities about the importance of an area for the conservation of a listed species. Critical habitat can also identify areas that may require special management or protection. Areas designated as critical habitat receive protection under section 7 of the Act with regard to actions carried out, funded, or authorized by a Federal Agency which are likely to adversely modify or destroy critical habitat. Section 7 requires that Federal Agencies consult on their actions which may affect critical habitat and ensure that their actions are not likely to destroy or adversely modify critical habitat. It also requires conferences on Federal actions which are likely to result in the modification or destruction of proposed critical habitat. Except for these added consultation (designated critical habitat) and conference (proposed critical habitat) requirements provided under section 7, the Act does not have other requirements relating to critical habitat.

Designation of critical habitat only affects Federal actions, and it is useful in notifying Federal Agencies about areas that are important to a listed species. Designation does not create a management plan for a listed species. Designation does not prohibit certain actions, entail specific habitat requirements, establish numerical population goals, prescribe specific management actions (inside or outside of critical habitat), nor does it have a direct effect on habitat not designated as critical habitat. However, critical habitat

may provide added protection for areas designated and thus shorten the time needed to achieve recovery.

Areas designated as critical habitat are essential to the conservation of a species. Areas not included in critical habitat that contain one or more of the essential elements may still be important for conservation of a species and may be protected by other provisions of the Act, by other conservation laws, and by agency regulations. Also, some areas may no longer contain some of the constituent elements, but these elements may be restored in the future. These areas may also be essential for the long-term recovery of the species and, therefore, may be designated as critical habitat. However, not all areas containing habitat features of a listed species are necessarily essential for its survival and recovery. Although designated critical habitat also may be of considerable value in maintaining ecosystem integrity and supporting other species, these attributes are only considered in the economic analysis and exclusion process.

Determination of Critical Habitat

General

The primary constituent elements and additional selection criteria used to propose critical habitat areas are presented in this rule. Detailed descriptions and biological basis for the constituent elements will be presented in the biological support document. In determining which areas to designate as critical habitat for a species, the Service considers those physical and biological attributes that are essential to species conservation (i.e., constituent elements). In addition, the Act stipulates that the areas containing these elements may require special management considerations or protection. Such physical and biological features are stated in 50 CFR 424.12 and include, but are not limited to, the following items:

- (1) Space for individual and population growth, and for normal behavior;
- (2) Food, water, air, light, minerals, or other nutritional or physiological requirements;
- (3) Cover or shelter;
- (4) Sites for breeding, reproduction, rearing of offspring, germination, or seed dispersal; and generally;
- (5) Habitats that are protected from disturbance or are representative of the historical geographical and ecological distributions of a species.

In considering the biological basis for proposing critical habitat, the Service

focuses on the primary physical and biological elements that are essential to the conservation of the species without consideration of land or water ownership or management. The Service is required to list the known primary constituent elements together with a description of any critical habitat that is proposed.

The primary constituent elements determined necessary to the survival and recovery of the four Colorado River endangered fishes include, but are not limited to:

Water

This includes a quantity of water of sufficient quality (i.e., temperature, dissolved oxygen, contaminants, nutrients, turbidity, etc.) that is delivered to a specific location in accordance with a hydrologic regime that is required for the particular life stage for each species.

Physical Habitat

This includes areas of the Colorado River system that are inhabited or potentially habitable for use in spawning, nursery, feeding, and rearing, or corridors between these areas. In addition to river channels, these areas also include bottomlands, side channels, secondary channels, oxbows, backwaters, and other areas in the 100-year floodplain, which when inundated provide spawning, nursery, feeding and rearing habitats, or access to these habitats.

Biological Environment

Food supply, predation, and competition are important elements of the biological environment and are considered components of this constituent element. Food supply is a function of nutrient supply, productivity, and availability to each life stage of the species. Predation, although considered a normal component of this environment, may be out of balance due to introduced fish species in some areas. This may also be true of competition, particularly from nonnative fish species.

These primary constituent elements are interrelated in the life history of these four endangered fishes. This relationship was a prime consideration in selection of proposed critical habitat for the fishes.

Only those areas in the 100-year floodplain that contain the constituent elements will be considered part of critical habitat. The Service stresses that although critical habitat may only be seasonally occupied by the fish, such habitat remains important for their conservation.

Pursuant to section 4(b)(2) of the Act, critical habitat is to be designated on the basis of the best scientific data available, and after considering the economic and other impacts of designation. Areas may be excluded from the designation if the Secretary determines that the benefits of exclusion outweigh the benefits of critical habitat designation, unless the exclusion will result in the species' extinction.

This designation of critical habitat for the Colorado River endangered fish consisted of three major steps. The first step was to complete a biologically-based determination of potential critical habitat areas. The second step will determine the impacts of this designation. The third step will be to decide which areas, if any, should be excluded based upon economic or other relevant impacts and to determine the costs and benefits associated with the final designation.

The first step required an inventory of areas needed for the survival and recovery of the four species. For the razorback sucker, the biological determination was based on the primary constituent elements, additional selection criteria determined by the Service, past Service findings, and other published and nonpublished sources. These constituent elements and selection criteria were then applied throughout the historical range of the razorback sucker. For the Colorado squawfish, humpback chub, and bonytail chub, the biological determination was based on the primary constituent elements, recovery plans for these species, past Service findings, and other published and nonpublished sources. The biological support document will provide the details of the biological determinations.

The second step will be to determine the potential impacts of the proposed designations. These impacts will be addressed in the economic analysis.

The third step will be to decide which areas, if any, should be excluded based upon a determination that the benefits of the exclusion outweigh the benefits of designation unless the exclusion will result in the extinction of any of the four species. Any changes in critical habitat areas resulting from the exclusion process will be noted in the final rule.

Additional Selection Criteria for the Razorback Sucker

Because a recovery plan for the razorback sucker has not yet been prepared, additional selection criteria were developed to assist the Service in making a determination of which areas to propose as critical habitat. Previous Service findings, other published and unpublished literature sources, and discussions with individual members of the Colorado River Fishes Recovery Team were utilized to develop the constituent elements and additional selection criteria.

The razorback sucker has displayed a degree of versatility in its ability to survive and spawn in different habitats. However, razorback sucker populations continue to decline and are considered below the survival level. Thus, as versatile as the razorback sucker appears to be in selecting spawning habitat, there has been little or no recruitment of young to the adult population. Therefore, special consideration was given to habitats required for its reproduction and recruitment.

The following selection criteria were used by the Service to help determine areas necessary for survival and recovery of the razorback sucker.

1. Known or suspected wild spawning populations, although recruitment may be limiting or nonexistent.

2. Areas where juvenile razorback suckers have been collected or which could provide suitable nursery habitat (backwaters, flooded bottomlands, or coves).

3. Areas presently occupied or that were historically occupied that are considered necessary for recovery and that have the potential for establishment of razorback sucker.

4. Areas and water required to maintain rangewide fish distribution, and diversity under a variety of physical, chemical, and biological conditions.

5. Areas that need special management or protection to insure razorback survival and recovery. These areas once met the habitat needs of the razorback sucker and may be recoverable with additional protection and management.

Summary

The primary constituent elements were applied throughout the historical range of the Colorado River endangered

fishes. In addition, the five selection criteria described above were also used to evaluate potential razorback sucker critical habitat areas. The proposed critical habitat designations are based on the primary constituent elements, published and unpublished sources, Service reports and other findings, recovery plans (for Colorado squawfish, humpback chub, and bonytail chub), additional selection criteria, and the preliminary recovery goals being presently discussed for the razorback sucker by the Colorado River Fishes Recovery Team.

Proposed Critical Habitat Designation

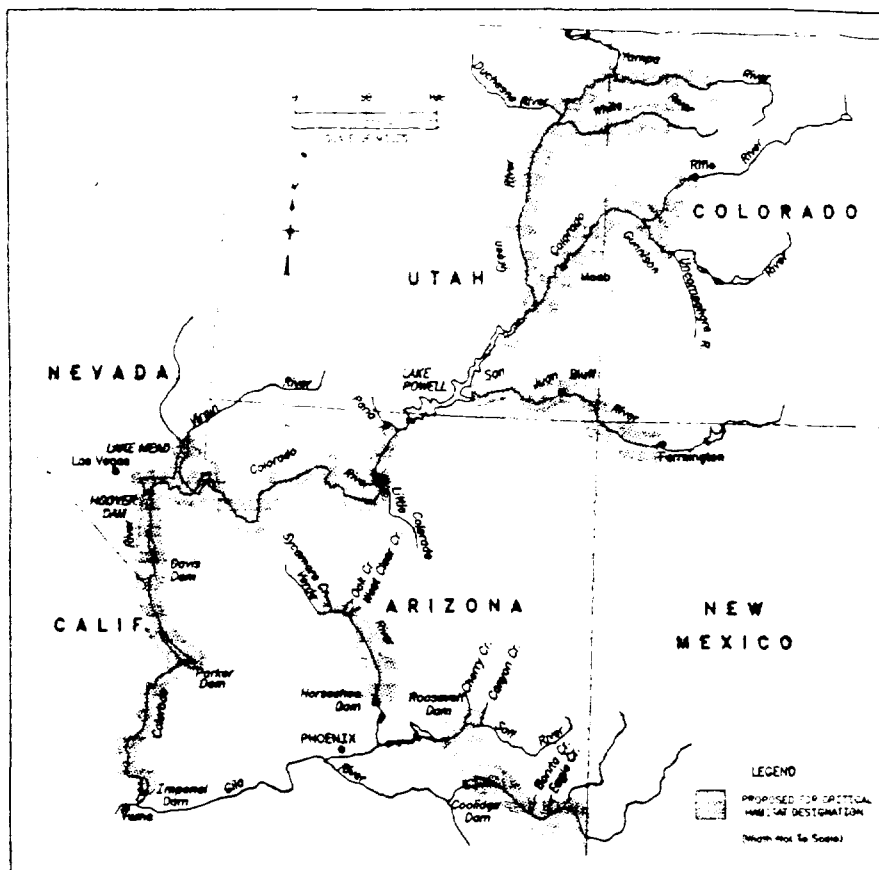
The results of the critical habitat inventory process described above are presented in this section. The presence of one or more primary constituent elements did not automatically result in inclusion as proposed critical habitat. Section 3(5)(C) of the Act states that "Except in those circumstances determined by the Secretary, critical habitat shall not include the entire geographical area which can be occupied by the threatened or endangered species." This proposal is in compliance with the provisions of the Act, as only a portion of the historical range is proposed for designation.

A detailed discussion of the biological basis for selection of each river reach proposed for critical habitat will be included in the biological support document. This will include a discussion of which attributes of the constituent elements may need to be enhanced.

The critical habitat areas proposed below are those that the Service believes are required for the survival and recovery of each species. Figure 1 displays the total extent of proposed critical habitat for all four species combined. This includes the considerable overlap of proposed critical habitat between species. A specific description of the location of each area proposed for critical habitat is provided later in this rule.

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Figure 1



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Critical habitat for each species by State is summarized in Table 1. The 100-year floodplain delineates the lateral boundary of the proposed critical

habitat for the razorback sucker and Colorado squawfish. This boundary encompasses the productive areas adjacent to the rivers, including the

mouths of smaller tributaries and other habitats that provide essential fish habitat when inundated.

TABLE 1.—RIVER KILOMETERS (MILES) OF CRITICAL HABITAT FOR FOUR ENDANGERED COLORADO RIVER FISHES

| State | Razorback sucker | Colorado squawfish | Humpback chub | Bonytail chub | Total ¹ |
|--------------------------------|------------------|--------------------|---------------|---------------|-----------------------------|
| Colorado | 349 (217) | 583 (362) | 95 (59) | 95 (59) | 583 (362) |
| Utah | 1107 (688) | 1168 (726) | 224 (139) | 224 (139) | 1172 (728) |
| New Mexico | 63 (39) | 97 (60) | | | 97 (60) |
| Arizona | 993 (617) | | 291 (181) | | 993 (617) |
| AZ/Nevada | 209 (130) | | | 132 (82) | 209 (130) |
| AZ/California | 214 (133) | | | 103 (64) | 317 (197) |
| Basin Total ² | 2935 (1824) | 1848 (1148) | 610 (379) | 554 (344) | 3370 ³ (2094) |

¹ Total—Distances include all overlapping critical habitat reaches by State for all four Colorado River endangered fishes.

² Basin Total—Distances include total extent of critical habitat by species for the entire Basin.

³ Total Basin Total—Note that the sum of critical habitat by species is greater than actual river distance due to extensive overlap.

Razorback Sucker

The Service is proposing 15 reaches of the Colorado River system as critical habitat for the razorback sucker. These reaches total 2,935 kilometers (1,824 miles) as measured along the center line of the river within the subject reaches (table 1). This represents approximately 52% of the historical habitat for the species. In the Upper Basin, critical habitat is being proposed in the Green, Yampa, Duchesne, Colorado, White, Gunnison, and San Juan Rivers. Portions of the Colorado, Gila, Salt and Verde Rivers are being proposed in the Lower Basin. These reaches flow through a variety of landownerships, both public and private. The approximate mileage of critical habitat by landownership of shoreline for the razorback sucker is presented in table 2.

TABLE 2.—OWNERSHIP OF SHORELINE IN KILOMETERS (MILES) FOR PROPOSED CRITICAL HABITAT FOR THE ENDANGERED COLORADO RIVER FISHES¹

| Ownership ² | Razorback sucker | Colorado squawfish | Humpback chub | Bonytail chub |
|------------------------|------------------|--------------------|----------------|----------------|
| NPS | 1,955 (1,215) | 900 (559) | 545 (336) | 686 (426) |
| BLM | 1,147 (713) | 1,119 (695) | 203 (126) | 134 (83) |
| USFS | 460 (286) | 0 | 0 | 0 |
| USFWS | 159 (99) | 35 (22) | 0 | 40 (25) |
| Tribal | 998 (620) | 451 (280) | 444 (276) | 138 (86) |
| State Lands | 69 (43) | 79 (49) | 1 (<1) | 40 (25) |
| Private | 1,083 (673) | 1112 (691) | 27 (17) | 60 (37) |
| Total | 5,871 (3,649) | 3,696 (2,296) | 1,220 (758) | 1,096 (682) |

¹ The river distances shown in this table were compiled using total shoreline kilometers (assuming 1 kilometer of river centerline has 2 kilometers of shoreline) for each proposed critical habitat reach. There is considerable overlap of proposed critical habitat reaches between species; thus, total miles of critical habitat for all four Colorado River endangered fishes proposed to be designated cannot be obtained from this table.

² NPS—National Park Service; BLM—Bureau of Land Management; USFS—U.S. Forest Service; USFWS—U.S. Fish and Wildlife Service.

Humpback Chub

The Service is proposing seven reaches of the Colorado River system as critical habitat for the humpback chub. These reaches total 610 kilometers (379 miles) as measured along the center line of the subject reaches (table 1). This represents approximately 28% of the historical habitat of the species. Critical habitat for the humpback chub is being

proposed in the Colorado, Green, and Yampa Rivers in the Upper Basin, and the Colorado and Little Colorado Rivers in the Lower Basin. The approximate mileage of critical habitat by landownership of shoreline for the humpback chub is presented in table 2.

Bonytail Chub

The Service is proposing five reaches of the Colorado River system as critical habitat for the bonytail chub. These reaches total 554 kilometers (344 miles) as measured along the center line of the subject reaches (table 1). This represents approximately 15 percent of the historical habitat of the species. Critical habitat for the bonytail chub is being

proposed in the Colorado, Green, and Yampa Rivers in the Upper Basin, and the Colorado River in the Lower Basin. The approximate mileage of critical habitat by landownership of shoreline for the bonytail chub is presented in table 2.

Effects of Critical Habitat Designation

Section 7(a)(2) of the Act requires Federal Agencies to insure that activities they authorize, fund, or carry out are not likely to destroy or adversely modify critical habitat. This Federal responsibility accompanies, and is in addition to, the requirement in section 7(a)(2) of the Act that Federal Agencies insure that their actions are not likely to jeopardize the continued existence of any listed species. Jeopardy is defined at 50 CFR 402.02 as any action that would be expected to appreciably reduce the likelihood of survival and recovery of a species in the wild by reducing its numbers, reproduction, or distribution. Destruction or adverse modification of critical habitat is defined at 50 CFR 402.02 as a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. The regulations also state that such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical. The requirement to consider potential adverse modification of critical habitat is an incremental consideration above and beyond the review necessary to evaluate the likelihood of jeopardy and of incidental take in a section 7 consultation. Section 4(b)(8) of the Act requires, for any proposed or final regulation that designates critical habitat, a brief description and evaluation of those activities (public or private) that may adversely modify such habitat or may be affected by such designation.

As required by 50 CFR 402.14, a Federal Agency must consult with the Service if it determines that an action may affect either a listed species or its critical habitat. Federal action agencies are responsible for determining whether or not to consult with the Service. The Service will review action agencies' determinations on a case-by-case basis and may or may not concur with the action agencies' determination of "no effect" or "may affect" for critical habitat, as appropriate.

Survival and recovery, mentioned in the definitions of adverse modification and jeopardy, are conceptually related. The survival of a species may be viewed, in part, as a progression between extinction and recovery of the

species. The closer a species is to recovery, the greater the certainty of its continued survival. Thus, terms "survival" and "recovery" differ by the degree of confidence about the ability of a species to persist in nature over a given time period.

The purpose of critical habitat is to contribute to a species' conservation, which by definition leads to recovery and delisting. Section 7(a)(2) prohibitions against the destruction or adverse modification of critical habitat apply to actions that would impair survival and recovery of a listed species. As a result of the link between critical habitat and recovery, these prohibitions should protect the value of critical habitat until recovery.

In section 7 consultations, the Service will consider effects of proposed actions on the primary constituent elements in view of the value of that particular area to the species. Section 7 consultation is initiated by a Federal Agency when its actions may affect critical habitat by impacting any of the primary constituent elements or reduce the potential of critical habitat to develop these elements. This is independent from any other Federal action that may affect the species. The consultation also would take into consideration Federal actions outside of critical habitat that also may impact a critical habitat reach (e.g., water management, water quality, water depletions, and nonnative fish stocking or introductions). The consultation should consider the effects of Federal actions within a critical habitat reach relative to other critical habitat reaches. Though an action may not adversely modify critical habitat, it still may affect one or more of the Colorado River endangered fish and, therefore, be subject to consultation under section 7 of the Act to determine the likelihood of jeopardy to the species.

Federal Agencies are required to confer on any of their discretionary actions which are likely to result in the adverse modification or destruction of proposed critical habitat. The conference is designed to identify and resolve potential conflicts. Conferences are different than formal consultations in that they involve informal discussions and the Service only makes advisory recommendations on ways to minimize or avoid adverse effects. Agencies are not precluded from making irreversible and irretrievable commitments of resources while critical habitat is merely proposed; they are, however, precluded by section 7(d) from making such commitments after a final designation is effective.

Considerations of Economic and Other Factors

The economic, environmental, and other impacts of a designation also must be evaluated and considered. Thus, the Service must identify present and anticipated activities that may adversely modify the proposed critical habitat or be affected by its designation. The Secretary may exclude any area from critical habitat should it be determined that the benefits of such exclusion outweigh the benefits of specifying such an area as part of the critical habitat unless it is determined, based upon the best scientific and commercial data available, that the failure to designate such an area as critical habitat will result in the extinction of the species concerned.

The economic analysis will only consider impacts that result from critical habitat designation. These impacts are in addition to existing economic and other impacts which are attributable to listing of the species. Impacts attributable to listing include those resulting from the taking prohibitions under section 9 of the Act and associated regulations. "Taking" as defined in section 3(18) of the Act includes harm to a listed species. "Harm" means: An act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. (50 CFR 17.3).

Impacts attributable to listing also include those resulting from the responsibility of Federal Agencies under section 7 to insure that their actions are not likely to jeopardize the continued existence of endangered or threatened species. An action could be likely to jeopardize the continued existence of a listed species through the destruction or modification of its habitat regardless of whether that habitat has been formally designated as critical. The Act provides significant protection to species, including habitat, as a result of listing. Therefore, the direct economic and other impacts resulting from additional habitat protection through critical habitat designation may be minimal. In general, the designation of critical habitat reinforces the substantive protection resulting from listing.

To complete an economic analysis for the four Colorado River endangered fishes, costs and benefits that may result from designating critical habitat must be analyzed. The most time consuming and complex portion of this analysis is developing a range of flow scenarios for

river reaches where biological information is limited on the needs of these species. This range of flow scenarios will be evaluated for impacts from potential changes in flows. For river reaches where flow requirements of the fish are known, these flows must be compared to present and historical flows. This analysis will capture the costs of having endangered fish present in the river including listing and critical habitat designation costs. Where the data are available, flow scenarios will be developed. These flow scenarios will then be evaluated to determine possible costs and benefits to hydropower production, recreation, water management, etc. Cost/benefit data must also be collected for activities not directly affected by water flow. All the impacts will then have to be quantified and assembled into data bases for input into the economic model. The national and regional economic effects will then be analyzed using the developed and calibrated model. Costs and benefits must then be allocated between:

- (1) Listing effects and effects of the critical habitat designation,
- (2) Effects among species, and
- (3) Effects among river reaches being proposed. The draft economic analysis will then be prepared and undergo a public review prior to incorporating the results into the final rule.

The economic analysis of critical habitat designations has two major components. The first component involves identifying the potential impacts of the critical habitat designations and estimating their magnitude. The second component involves developing and utilizing economic models to demonstrate how the positive and negative economic impacts may affect various economic interests in the Basin, and the economy of the Basin as a whole. The major types of economic impacts that may occur have been identified, and efforts are under way to estimate their magnitude. This includes development of an input-output model for each of the seven States in the Basin, and a computerized model for the entire Basin.

Because of the large geographical area of the study and the complex nature of potential impacts, a considerable amount of work on economic impacts remains to be completed. Specifically, computerized modeling studies must be completed to assess the potential effects of critical habitat designation on the seven-State area. Furthermore, a Basin-wide survey of recreational resources must be completed to assess the potential magnitude of recreational impacts. Finally, a Basin-wide economic model must be developed and

paramaterized to assess the overall economic consequences of positive and negative impacts to the various economic interests throughout the Basin. These activities require a complex and diverse set of economic activities over a large geographic area and will require time to complete.

The Service's economic analysis will use a Computable General Equilibrium Model (CGE Model) to describe the interrelationships in the economy at a chosen level of spatial aggregation (e.g., counties) and the relationships between sectors (e.g., recreation and hydropower). In addition, the model allows for analysis of resource reallocation proposals (e.g., changes in river flows as represented by increased or decreased hydropower production) in a manner such that the net effects, not just the total effects, are calculated. Given this capability, the impacts are properly represented as net impacts throughout the economy; thus, the model provides a comprehensive assessment of economic impacts.

CGE Models are excellent tools to estimate the direct and indirect economic impacts of resource reallocation decisions, such as critical habitat designation. CGE Models explicitly predict the price adjustments observed in an economy. It is important to capture the adjustment of the prices of goods and services in the economy which result from changes in how resources are utilized. Failure to represent and allow for changes, such as price changes, will result in a misrepresentation of the true impacts of critical habitat designation. CGE Models also will allow substitution possibilities in production and consumption.

The source of regional production data to be used in the analysis is the Department of Agriculture's Forest Service's IMPLAN Project. These data represent the economic flow between sectors in the economy, such as purchases of inputs from one industry to be used in another industry. The CGE Model captures these economic interactions of consumers, production sectors, and government sectors.

The number of economic sectors in the IMPLAN data set has been collapsed from 523 to 20 sectors. The number of sectors was reduced by merging related activities to make the analysis tractable. This allows focus on those sectors representing the most significant economic activities associated with the Basin. These 20 sectors capture the principal activities associated with hydroelectric power, agriculture, municipal, industry, recreation, mining, and oil and gas production. Other data, which will be incorporated into the CGE

Model, include the Consumer Expenditure Survey, the Bureau of Economic Analysis' capital stock data and value added data, the Census of Agriculture land use by crop type data, and recreation data.

Any direct impacts will occur at sub-State levels; therefore, it is appropriate to base the analysis on sub-State data. The CGE Model allows for inputs at the county level and includes in excess of 150 counties of the seven-State region. This level of desegregated county data was chosen because any direct impacts will be concentrated at the county level, while total impacts may be observed regionwide.

As a result of the time constraints under which this initial proposed critical habitat designation was prepared and the magnitude of the issues and area under consideration, the Service's economic analysis has not been completed. However, once completed it will be made available for public review and then be incorporated in the final rule.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices.

Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Act provides for possible land and water acquisitions in cooperation with States and requires that recovery actions be carried out for all listed species. The requirements for Federal Agencies with respect to protection of designated critical habitat of a federally listed species and prohibitions against taking are discussed below.

Section 7 of the Act requires Federal Agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened, and with respect to any critical habitat that is designated or proposed for the species. Section 7(a)(4) of the Act and 50 CFR 402.10 require Federal Agencies to confer informally with the Service on any action that is likely to result in destruction or adverse modification of proposed critical habitat. If critical habitat is subsequently designated, section 7(a)(2) requires Federal Agencies to insure that activities they authorize, fund, or carry out are not likely to destroy or adversely modify critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal Agency must enter into consultation with the Service.

Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402.

In the case of any of the Colorado River endangered fish, the Service will confer on projects affecting proposed critical habitat when so requested by an action agency. The evaluation of Federal actions involving designated critical habitat will be made on a case-by-case basis during section 7 consultation. The Service will consider the effects of a proposed Federal action on the primary constituent elements associated with critical habitat, along with the reasons why that area was determined to be critical habitat.

When the Service issues a jeopardy biological opinion, it must also provide reasonable and prudent alternatives to the project, if any are identifiable. This is also true when the Service makes a finding of adverse modification to designated critical habitat. Reasonable and prudent alternatives are defined at 50 CFR 402.02 as:

Alternative actions identified during formal consultation that can be implemented in a manner consistent with the scope of the Federal agency's legal authority and jurisdiction, that is economically and technologically feasible, and that the Director believes would avoid . . . resulting in the destruction or adverse modification of critical habitat.

Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project.

The Service may reinitiate consultation and confer on some projects for which biological opinions on the effect of Federal Agency actions on the Colorado River endangered fish already have been issued when discretionary Federal involvement remains, and the Service and lead Federal Agency determine their action may affect this proposed critical habitat. As necessary, the Service will prepare conference reports addressing effects of these actions on proposed critical habitat. Until a final rule is published, the Service will issue combined consultation/conference documents for any new consultation request received subsequent to publication of this proposed rule and before a final designation is effective.

Public Comments Solicited

The Service intends that any action resulting from this proposal will be appropriate and effective. Therefore, comments from the public, other concerned government agencies, Indian nations, the scientific and environmental communities, industry, or any other interested organization

concerning the information presented within this proposed rule are hereby sought.

As stated previously, comments received during the 60-day comment period on this proposed rule will be considered during preparation of the final rule. Additionally, comments received after the economic analysis and biological support document are made available will be used to prepare a final rule. The final decision on the designation of critical habitat will take into consideration the comments and any additional information received by the Service and will include any exemption determinations.

National Environmental Policy Act

The Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in conjunction with regulations adopted pursuant to section 4(a) of the Act. A notice outlining the Service's reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).

Regulatory Flexibility Act and Executive Order 12291

Based on the information discussed in this rule concerning public projects and private activities within critical habitat areas, it is not clear whether significant economic impacts will result from the critical habitat designation. There are a limited number of actions on private land that have Federal involvement through funds or permits that may be affected by critical habitat designation. A final determination of the impacts of this proposal is not possible until the required economic analysis is completed. The final rule will contain a determination of the proposed actions in compliance with the Regulatory Flexibility Act and Executive Order 12291. Also, no direct costs, enforcement costs, information collection, or recordkeeping requirements are imposed on small entities by this designation. Further, the rule contains no recordkeeping requirements as defined by the Paperwork Reduction Act of 1990.

References Cited

A complete list of all references cited herein is available upon request from the Service's Salt Lake City Field Office (see ADDRESSES above).

Author

The primary authors of this proposed rule are Henry Maddux, U.S. Fish and Wildlife Service, Ecological Services (see ADDRESSES section); Lesley

Fitzpatrick, U.S. Fish and Wildlife Service, Arizona Field Office; William Noonan, U.S. Fish and Wildlife Service, Colorado State Office; and Harold Tyus, U.S. Fish and Wildlife Service, Denver Regional Office.

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, and Transportation.

Proposed Regulations Promulgation

Accordingly, it is hereby proposed to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 17—[AMENDED]

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99–625, 100 Stat. 3500, unless otherwise noted.

§ 17.11 [Amended]

2. It is proposed to amend § 17.11(h) by revising the "critical habitat" entry for "Chub, bonytail," "Chub, humpback," "Squawfish, Colorado," and "Sucker, razorback," under Fishes, to read 17.95(e).

3. It is proposed to amend § 17.95(e) by adding critical habitat of the bonytail chub (*Gila elegans*), humpback chub (*Gila cypha*), Colorado squawfish (*Ptychocheilus lucius*), and razorback sucker (*Xyrauchen texanus*), in the same alphabetical order as these species occur in 17.11(h).

§ 17.95 Critical habitat—fish and wildlife.

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Bonytail Chub (*Gila elegans*)

Description of areas taken from BLM 1:100,000 scale maps (available from BLM State Offices): Rangely, CO 1989; Canyon of Lodore, CO 1990; Seep Ridge, UT/CO 1982; La Sal, UT/CO 1985; Hite Crossing, UT 1982; Parker, AZ/CA 1980; Davis Dam, AZ/NV/CA 1982; Boulder City, NV/AZ 1978; Needles, CA 1986.

Colorado, Moffat County. The Yampa River from the boundary of Dinosaur National Monument in T.6N., R.99W., section 27 (6th Principal Meridian) to the confluence with the Green River in T.7N., R.103W., section 28 (6th Principal Meridian).

Utah, Uintah County, and Colorado, Moffat County. The Green River from the confluence with the Yampa River in T.7N., R.103W., section 28 (6th Principal Meridian) to the boundary of Dinosaur National Monument in T.6N., R.24E. section 30 (Salt Lake Meridian).

Utah, Uintah and Grand Counties. The Green River (Desolation and Gray Canyons) from Sumner's Amphitheater (river mile 85)

in T.12S., R.18E., section 5 (Salt Lake Meridian) to Swasey's Rapid (river mile 12) in T.20S., R.16E., section 3 (Salt Lake Meridian).

Utah, Grand County, and Colorado, Mesa County. The Colorado River from Black Rocks (river mile 137) in T.10S., R.104W., section 25 (6th Principal Meridian) to Fish Ford (river mile 106) in T.21S., R.24E., section 35 (Salt Lake Meridian).

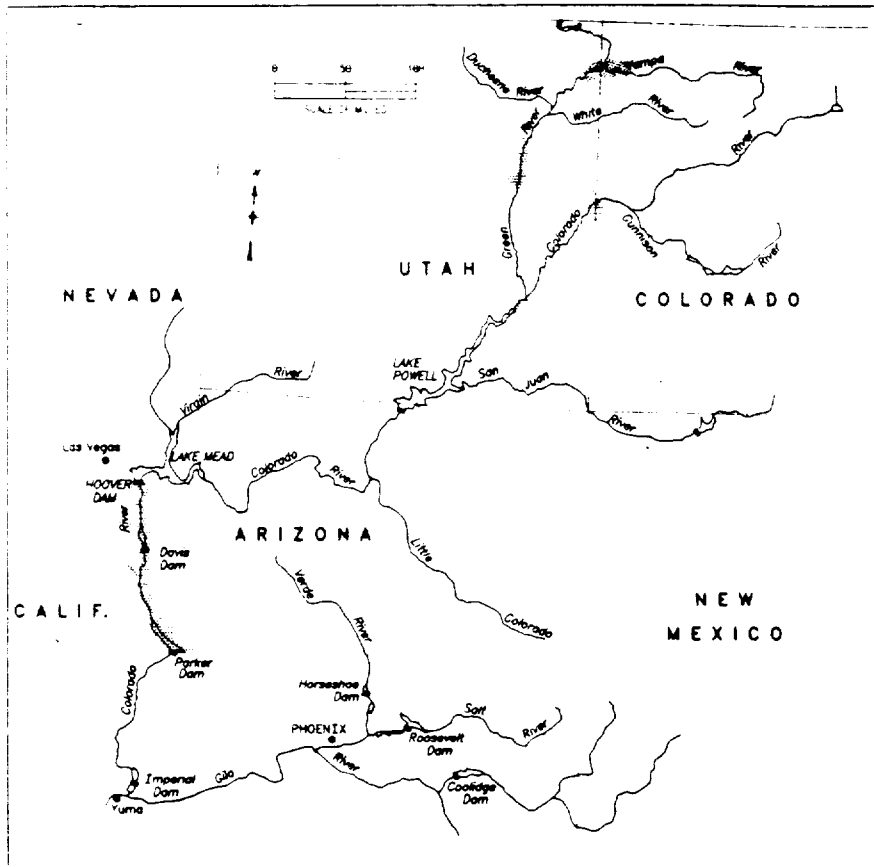
Utah, Garfield and San Juan Counties. The Colorado River from Brown Betty Rapid (river mile 212.5) in T.30S., R.18E., section 34 (Salt Lake Meridian) to Imperial Canyon (river mile 200) in T.31S., R.17E., section 28 (Salt Lake Meridian).

Arizona, Mohave County; Nevada, Clark County; and California, San Bernardino County. The Colorado River from Hoover Dam in T.30N., R.23W., section 3 (Gila and

Salt River Meridian) to Parker Dam in T.11N., R.18W., section 16 (Gila and Salt River Meridian) including Lakes Mohave and Havasu up to their full pool elevations.

Known constituent elements include water, physical habitats, and biological environment as required for each particular life stage for each species.

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Humpback Chub (*Gila cypha*)

Description of areas taken from BLM 1:100,000 scale maps (available from BLM State Offices): Rangely, CO 1989; Canyon of Lodore, CO 1990; Seep Ridge, UT/CO 1982; Vernal, UT/CO 1982; Grand Junction, CO 1990; Moab, UT/CO 1985; La Sal, UT/CO 1985; Tuba City, AZ 1983; Peach Springs, AZ 1980; Grand Canyon, AZ 1980; Mt. Trumbull, AZ 1979.

Colorado, Moffat County. The Yampa River from the boundary of Dinosaur National Monument in T.6N., R.99W., section 27 (6th Principal Meridian) to the confluence with the Green River in T.7N., R.103W., section 28 (6th Principal Meridian).

Utah, Uintah County, and Colorado, Moffat County. The Green River from the confluence with the Yampa River in T.7N., R.103W.,

section 28 (6th Principal Meridian) to the southern boundary of Dinosaur National Monument in T.6N., R.24E., section 30 (Salt Lake Meridian).

Utah, Uintah and Grand Counties. The Green River (Desolation and Gray Canyons) from Sumners Amphitheater (river mile 85) in T.12S., R.18E., section 5 (Salt Lake Meridian) to Swasey's Rapid (river mile 12) in T.20S., R.16E., section 3 (Salt Lake Meridian).

Utah, Grand County, and Colorado, Mesa County. The Colorado River from Black Rocks (river mile 137) in T.10S., R.104W., section 25 (6th Principal Meridian) to Fish Ford River (mile 106) in T.21S., R.24E., section 35 (Salt Lake Meridian).

Utah, Garfield and San Juan Counties. The Colorado River from Brown Betty Rapid River (mile 212.5) in T.30S., R.18E., section

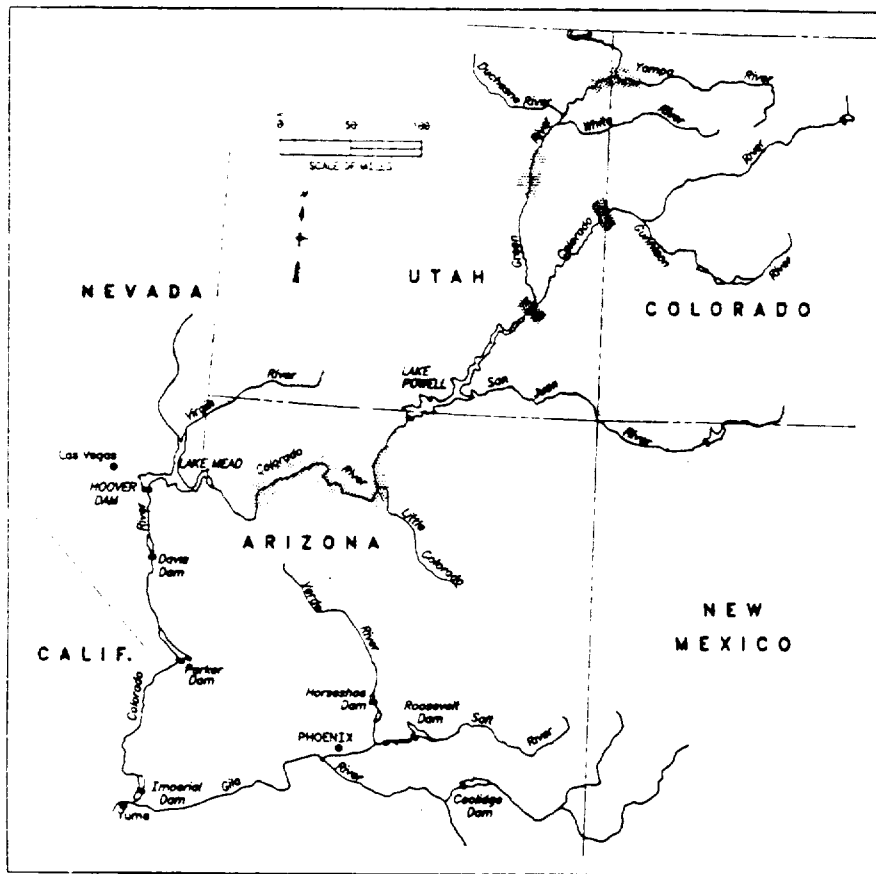
34 (Salt Lake Meridian) to Imperial Canyon (river mile 200) in T.31S., R.17E., section 28 (Salt Lake Meridian).

Arizona, Coconino County. The Little Colorado River from river mile 8 in T.32N., R.6E., section 12 (Salt and Gila River Meridian) to the confluence with the Colorado River in T.32N., R.5E., section 1 (Salt and Gila River Meridian).

Arizona, Coconino County. The Colorado River from Nautiloid Canyon (river mile 34) in T.36N., R.5E., section 35 (Salt and Gila River Meridian) to Granite Park (river mile 208) in T.30N., R.10W., section 25 (Salt and Gila River Meridian).

Known constituent elements include water, physical habitat, and biological environment as required for each particular life stage for each species.

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Colorado Squawfish (*Ptychocheilus lucius*)

Description of areas taken from BLM 1:100,000 maps (available from BLM State Offices): Canyon of Lodore, CO 1990; La Sal, UT/CO 1985; Rangely, CO 1989; Delta, CO 1989; Grand Junction, CO 1990; Hite Crossing, UT 1982; Vernal, UT/CO 1990; Craig, CO 1990; Bluff, UT/CO 1985; Moab, UT/CO 1985; Hanksville, UT 1982; San Rafael Desert, UT 1985; Huntington, UT 1982; Price, UT 1989; Farmington, NM 1991; Navajo Mountain, UT/AZ 1982. The 100-year floodplain for many areas is detailed in Flood Insurance Rate Maps (FIRM) published by and available through the Federal Emergency Management Agency (FEMA). In areas where a FIRM is not available the presence of alluvium soils or known high water marks can be used to determine the extent of the floodplain. Only areas of floodplain containing constituent elements are considered critical habitat.

Colorado, Moffat County. The Yampa River and its 100-year floodplain from the State

Highway 394 bridge (river mile 137.7) in T.8N., R.91W., section 1 (6th Principal Meridian) to the confluence with the Green River in T.7N., R.103W., section 28 (6th Principal Meridian).

Utah, Uintah, Carbon, Grand, Emery, Wayne, and San Juan Counties, and Colorado, Moffat County. The Green River and its 100-year floodplain from the confluence with the Yampa River in T.7N., R.103W., section 28 (6th Principal Meridian) to the confluence with the Colorado River in T.30S., R.10E., section 7 (Salt Lake Meridian).

Colorado, Rio Blanco County, and Utah, Uintah County. The White River and its 100-year floodplain from Rio Blanco Lake Dam (river mile 150) in T.1N., R.96W., section 6 (6th Principal Meridian) to the confluence with the Green River in T.9S., R.20E., section 4 (Salt Lake Meridian).

Colorado, Delta and Mesa Counties. The Gunnison River and its 100-year floodplain from the confluence with the Uncompahgre River in T.15S., R.96W., section 11 (6th Principal Meridian) to the confluence with

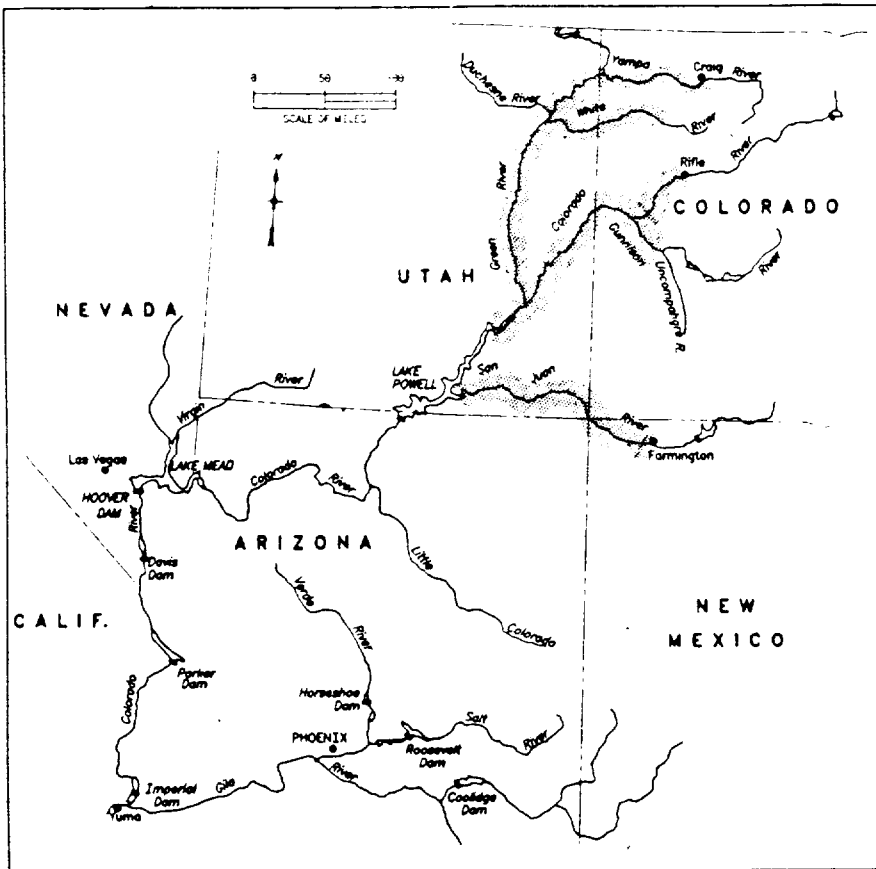
the Colorado River in T.1S., R.1W., section 22 (Ute Meridian).

Colorado, Mesa and Garfield Counties; and Utah, Grand, San Juan, Wayne, and Garfield Counties. The Colorado River and its 100-year floodplain from the Colorado River Bridge at exit 90 north off Interstate 70 (river mile 238) in T.6S., R.93W., section 16 (6th Principal Meridian) to North Wash including the Dirty Devil arm of Lake Powell up to the full pool elevation in T.33S., R.14E., section 29 (Salt Lake Meridian).

New Mexico, San Juan County, and Utah, San Juan County. The San Juan River and its 100-year floodplain from the State Route 371 Bridge in T.29N., R.13W., section 17 (New Mexico Meridian) to Neskahai Canyon in the San Juan arm of Lake Powell in T.41S., R.11E., section 26 (Salt Lake Meridian) up to the full pool elevation.

Known constituent elements include water, physical habitats, and biological environment as required for each particular life stage for each species.

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Razorback Sucker (*Xyrauchen texanus*)

Description of areas taken from Bureau of Land Management (BLM) 1:100,000 scale maps (available from BLM State Offices): Rangely, CO 1989; Canyon of Lodore, CO 1990; Seep Ridge, UT/CO 1982; La Sal, UT/CO 1985; Westwater, UT/CO 1981; Hite Crossing, UT 1982; Glenwood Springs, CO 1988; Grand Junction, CO 1990; Delta, CO 1989; Navajo Mountain, UT/AZ 1982; Vernal, UT/CO 1990; Craig, CO 1990; Bluff, UT/CO 1985; Moab, UT/CO 1985; Hanksville, UT 1982; San Rafael Desert, UT 1985; Huntington, UT 1982; Price, UT 1989; Tuba City, AZ 1983; Lake Mead, NV/AZ 1981; Davis Dam, AZ/NV/CA 1982; Parker, AZ/CA 1980; Yuma, AZ/CA 1988; Safford, AZ 1991; Globe, AZ 1980; Clifton, AZ/NM 1975; Prescott, AZ 1982; Theodore Roosevelt Lake, AZ 1982; Grand Canyon, AZ 1980; Mt. Trumbull, AZ 1979; Boulder City, NV/AZ 1978; Blythe, CA/AZ 1976; Trigo Mountains, AZ/CA 1988; Sedona, AZ 1982; Payson, AZ 1988; and U.S. Forest Service map: Tonto National Forest, Phoenix AZ. The 100-year floodplain for many areas is detailed in Flood Insurance Rate Maps (FIRM) published by and available through the Federal Emergency Management Agency (FEMA). In areas where a FIRM is not available, the presence of alluvium soils or known high water marks can be used to determine the extent of the floodplain. Only areas of floodplain containing constituent elements are considered critical habitat.

Colorado, Moffat County. The Yampa River and its 100-year floodplain from the mouth of Cross Mountain Canyon in T.6N., R.98W., section 23 (6th Principal Meridian) to the confluence with the Green River in T.7N., R.103W., section 28 (6th Principal Meridian).

Utah, Uintah County, and Colorado, Moffat County. The Green River and its 100-year floodplain from the confluence with the Yampa River in T.7N., R.103W., section 28 (6th Principal Meridian) to Sand Wash at river mile 96 in T.11S., R.18E., section 20 (6th Principal Meridian).

Utah, Uintah, Carbon, Grand, Emery, Wayne, and San Juan Counties. The Green River and its 100-year floodplain from Sand Wash at river mile 96 at T.11S., R.18E., section 20 (6th Principal Meridian) to the confluence with the Colorado River in T.30S., R.19E., section 7 (6th Principal Meridian).

Utah, Uintah County. The White River and its 100-year floodplain from the boundary of the Uintah and Ouray Indian Reservation at river mile 18 in T.9S., R.22E., section 21 (Salt Lake Meridian) to the confluence with the Green River in T.9S., R.20E., section 4 (Salt Lake Meridian).

Utah, Uintah County. The Duchesne River and its 100-year floodplain from river mile

2.5 in T.4S., R.3E., section 30 (Salt Lake Meridian) to the confluence with the Green River in T.5S., R.3E., section 5 (Utah Meridian).

Colorado, Delta and Mesa Counties. The Gunnison River and its 100-year floodplain from the confluence with the Uncompahgre River in T.15S., R.96W., section 11 (6th Principal Meridian) to Redlands Diversion Dam in T.1S., R.1W., section 27 (Ute Meridian).

Colorado, Mesa and Garfield Counties. The Colorado River and its 100-year floodplain from Colorado River Bridge at exit 90 north off Interstate 70 (river mile 238) in T.6S., R.93W., section 16 (6th Principal Meridian) to Westwater Canyon (river mile 125) in T.20S., R.25E., section 12 (Salt Lake Meridian) including the Gunnison River and its 100-year floodplain from the Redlands Diversion Dam in T.1S., R.1W., section 27 (Ute Meridian) to the confluence with the Colorado River in T.1S., R.1W., section 22 (Ute Meridian).

Utah, Grand, San Juan, Wayne, and Garfield Counties. The Colorado River and its 100-year floodplain from Westwater Canyon (river mile 125) in T.20S., R.25E., section 12 (Salt Lake Meridian) to full pool elevation, upstream of North Wash and including the Dirty Devil arm of Lake Powell in T.33S., R.14E., section 29 (Salt Lake Meridian).

New Mexico, San Juan County, and Utah, San Juan County. The San Juan River and its 100-year floodplain from the Hogback Diversion in T.29N., R.16W., section 9 (New Mexico Meridian) to the full pool elevation at the mouth of Neskahai Canyon on the San Juan arm of Lake Powell in T.41S., R.11E., section 28 (Salt Lake Meridian).

Arizona, Coconino and Mohave Counties, and Nevada, Clark County. The Colorado River and its 100-year floodplain from the confluence with the Little Colorado River in T.32N., R.5E., section 1 (Gila and Salt River Meridian) to Hoover Dam in T.30N., R.23W., section 3 (Gila and Salt River Meridian) including Lake Mead to the full pool elevation.

Arizona, Mohave County, and Nevada, Clark County. The Colorado River and its 100-year floodplain from Hoover Dam in T.30N., R.23W., section 1 (Gila and Salt River Meridian) to Davis Dam in T.21N., R.21W., section 18 (Gila and Salt River Meridian) including Lake Mohave to the full pool elevation.

Arizona, La Paz and Yuma Counties, and California, San Bernadino, Riverside, and Imperial Counties. The Colorado River and its 100-year floodplain from Parker Dam in T.11N., R.18W., section 16 (Gila and Salt River Meridian) to Imperial Dam in T.6S., R.22W., section 25 (Gila and Salt River Meridian) including Imperial Reservoir to the full pool elevation or 100-year floodplain, whichever is greater.

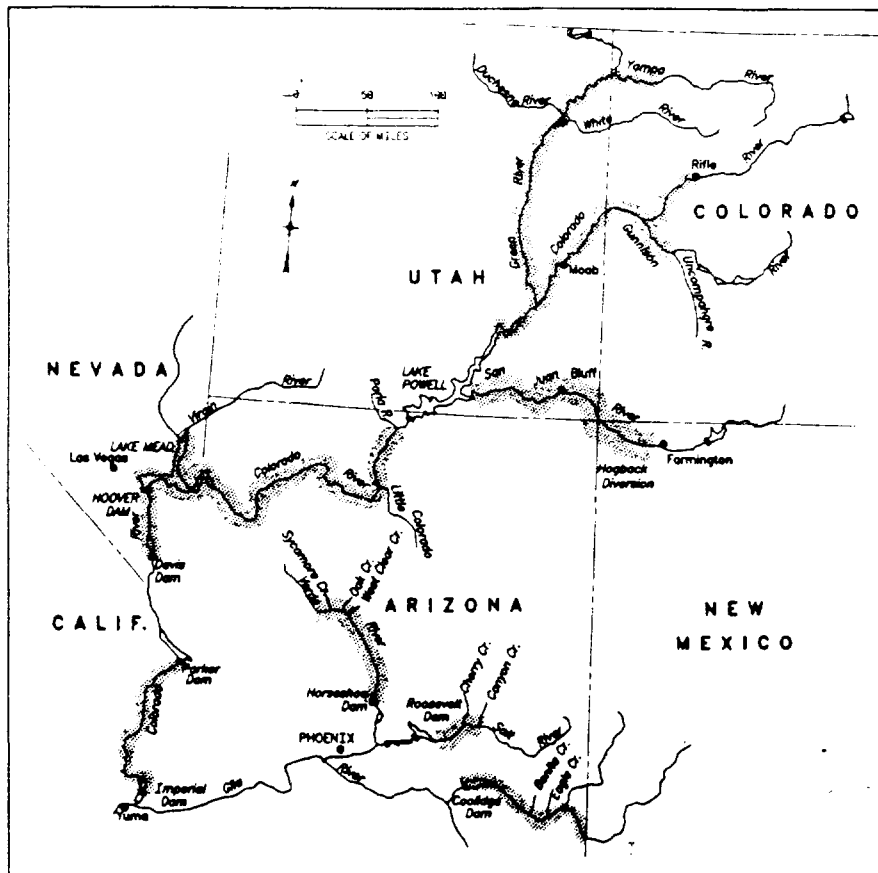
Arizona, Graham, Greenlee, Gila, and Pinal Counties. The Gila River and its 100-year floodplain from the Arizona-New Mexico border in T.8S., R.32E., section 34 (Gila and Salt River Meridian) to Coolidge Dam in T.3S., R.18E., section 17 (Gila and Salt River Meridian), including San Carlos Reservoir to the full pool elevation, Bonita Creek and its 100-year floodplain from the infiltration gallery in T.6S., R.28E., section 5 (Gila and Salt River Meridian) to the confluence with the Gila River in T.6S., R.28E., section 21 (Gila and Salt River Meridian) and Eagle Creek and its 100-year floodplain from the Phelps-Dodge Pumping Plant in T.4S., R.28E., section 26 (Gila and Salt River Meridian) to the confluence with the Gila River in T.5S., R.29E., section 31 (Gila and Salt River Meridian).

Arizona, Gila County. The Salt River and its 100-year floodplain from the old U.S. Highway 60/State Route 77 bridge (unsurveyed) to Roosevelt Diversion Dam in T.3N., R.14E., section 4 (Gila and Salt River Meridian) including Cherry Creek and its 100-year floodplain from the Cherry Creek road crossing in T.4N., R.15E., section 3 (Gila and Salt River Meridian) to the confluence with the Salt River in T.4N., R.15E., section 23 (Gila and Salt River Meridian) and Canyon Creek and its 100-year floodplain from the OW Ranch road crossing in T.R. section (Gila and Salt River Meridian) to the confluence with the Salt River in T.5N., R.16E., section 21 (Gila and Salt River Meridian).

Arizona, Yavapai County. The Verde River and its 100-year floodplain from the base of the dam forming Sullivan Lake in T.17N., R.2E., section 15 (Gila and Salt River Meridian) to Horseshoe Dam in T.7N., R.6E., section 2 (Gila and Salt River Meridian), including Horseshoe Lake to the full pool elevation including Sycamore Creek and its 100-year floodplain from the boundary with the Sycamore Canyon Wilderness Area in T.17N., R.3E., section 8 (Gila and Salt River Meridian) to the confluence with the Verde River in T.17N., R.3E., section 7 (Gila and Salt River Meridian), Oak Creek and its floodplain from Page Springs State Fish Hatchery in T.16N., R.4E., section 23 (Gila and Salt River Meridian) to the confluence with the Verde River in T.15N., R.4E., section 20 (Gila and Salt River Meridian) and West Clear Creek and its 100-year floodplain from the boundary of the West Clear Creek Wilderness Area in T.13N., R.6E., section 15 (Gila and Salt River Meridian) to the confluence with the Verde River in T.13N., R.6E., section 21 (Gila and Salt River Meridian).

Known constituent elements include water, physical habitat, and biological environment as required for each particular life stage for each species.

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Dated: January 21, 1993.

Richard N. Smith,
*Acting Director, U.S. Fish and Wildlife
Service.*

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